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*excellence*, consists well with the warmer elements of a broader humanity. A citation or two may be in place. "Pure logic, and pure mathematics (which is the same thing), aims at being true, in Leibnizian phraseology, in all possible worlds, not only in this higgledy-piggledy job-lot of a world in which chance has imprisoned us." Again: "It is a disgrace to the human race that it has chosen to employ the same word 'is' in two such utterances as, Socrates is human, and Socrates is a man." Once more: "Men may be defined as featherless bipeds, or as rational animals, or (more correctly) by the traits by which Swift delineates the Yahoos."

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*Elements of Vector Algebra.* By L. SILBERSTEIN. London, Longmans, 1919. Svo. 4 + 42 pp. Price \$1.60.

Extract from the Preface—"This little book was written at the instance of Messrs. Adam Hilger, and, in accordance with their desire, it contains just what is required for the purpose of reading and handling my *Simplified Method of Tracing Rays, etc.* (Longmans, Green and Co., London, 1918). With this practical aim in view, all critical subtleties have been purposely avoided. In fact, it is scarcely more than a synoptical presentation of the elements of vector algebra covering the needs of those engaged in geometrical optics. At the same time, however, it is hoped that this booklet will serve a more general purpose, viz., to provide everybody unacquainted with the subject with an easy introduction to the use of vector algebra.

"It is scarcely necessary to explain that the deductions given in this book are based on Euclid's axioms, notably with the inclusion of his postulate of parallels—upon which the equality of vectors is most essentially based. Those readers who are desirous of seeing how the formal rules here given can be generalized so as to be valid independently of the axioms of congruence and of parallels, may consult the author's *Projective Vector Algebra* (Bell and Sons, 1919), and a sequel to it published in *Phil. Mag.* for July, 1919, pp. 115-143. It is, however, advisable for the student to become first thoroughly familiar with the Euclidean vector algebra as here presented."

*Contents*—Section 1. Vectors defined, 1-2; 2. Equality of vectors defined, 2-3; 3. Addition of vectors, 3-10; 4. Subtraction of vectors, 10-11; 5. Scalar product of two vectors, 11-17; 6. The vector product of vectors, 17-21; 7. Expansion of vector formulæ, 21-23; 8. Iteration of vectorial multiplication 23-25; 9. The linear vector operator, 25-38; 10. Hints on differentiation of vectors, 38-40; Index, 41-42.

#### NOTES.

*The Elementary Differential Geometry of Plane Curves* by R. H. FOWLER, fellow of Trinity College, Cambridge is the latest issue, number 20, of the Cambridge Mathematical Tracts (Cambridge University Press, price 6 shillings).

The beautiful large pages, large type, and wide margins which the *American Journal of Mathematics* maintained for forty-one years have made way for pages about one-half as large, smaller type, and narrower margins.

Among the rich contents of *Archivio di Storia della Scienza*, volume 1, no. 2, June, 1919 (published February, 1920) are: an unpublished letter by Pierre Fermat, edited by G. Giovannozzi, 137-140; a bibliography of the printed works and of the facsimiles of manuscripts of Leonardo da Vinci, by A. Mieli, 177-187; a methodical bibliography of works on the history of science (326 titles) published in Italy since 1913, by A. Mieli, 195-217; and a review by G. Loria of L. C.